CLAIMS

What is claimed is:

1. A method of determining location at a receiver in a communication system having at least a first and a second satellite transmission source and at least a first terrestrial transmission source in communication with at least the first or the second satellite transmission source, comprising the steps of:

receiving a first synchronization pulse from the first satellite transmission source and receiving a second synchronization pulse from the second satellite transmission source;

measuring a time difference between the first synchronization pulse and the second synchronization pulse; and

determining a substantial longitudinal line based on which synchronization pulse between the first and second synchronization pulse is received first at the receiver and the time difference measured.

2. The method of claim 1, wherein the method further comprises the step of measuring a time delay between synchronization pulses from at least one of the first or second satellite transmission sources and the at least one terrestrial transmission source.

3. The method of claim 2, wherein the method further comprises the step of determining a substantial latitudinal line based on the time delay between signals from the satellite and terrestrial transmission sources.

4. The method of claim 3, wherein the method further comprises the step of cross-secting the substantial longitudinal line with the substantial latitudinal line to determine a location.

5. The method of claim 2, wherein the method further comprises measuring the difference between several synchronization pulses between the satellite and terrestrial transmission sources and averaging the difference to obtain better accuracy.

6. The method of claim 1, wherein the method further determines an area based on a unique transmitter identification number transmitted by the at least first terrestrial transmission source.

7. The method of claim 6, wherein the method further comprises the step of cross-secting the area with the substantial longitudinal line for better accuracy.

8. The method of claim 6, wherein if no service is currently received from the at least first terrestrial transmission source, then the receiver defaults to using the area closest to the last received unique transmitter identification number.

9. The method of claim 6, wherein the unique transmitter identification number is used to correlate to a predetermined area.

10. The method of claim 1, wherein the method further comprises the step of filtering data received at the receiver based on the substantial longitudinal line determined.

11. The method of claim 2, wherein the method further comprises the step of filtering data received at the receiver based on the substantial longitudinal line and the substantial latitudinal line determined.

12. The method of claim 6, wherein the method further comprises the step of filtering data received at the receiver based on the substantial longitudinal line and the unique transmitter identification number.

13. The method of claim 1, wherein the step of determining further comprises the step of using a time stamp during a receipt of the first synchronization signal and a receipt of the second synchronization signal.

14. A receiver unit capable of determining its approximate location using at least a first and a second satellite transmission source and, if available, at least a first terrestrial transmission source, comprising:

a receiver for receiving a first signal from the first satellite transmission source, a second signal from the second satellite transmission source, and a third signal from the at least first terrestrial transmission source;

a decoder for decoding a first synchronization pulse from the first signal, a second synchronization pulse from the second signal, and a third synchronization pulse from the third signal;

a counter for measuring a first delay between the first synchronization pulse and the second synchronization pulse and for measuring a second delay between one of the first synchronization pulse or the second synchronization pulse and the third synchronization pulse;

a processor for determining an first constant delay line based on the first delay and for determining a second constant delay line based on the second delay.

15. The receiver unit of claim 14, wherein the processor further determines the first constant delay line based on whether the receiver unit received the first signal first or the second signal first.

16. The receiver unit of claim 14, wherein the counter measures a number of 23.92 Megahertz clock cycles to determine the first delay.

17. The receiver unit of claim 14, wherein the decoder further decodes a unique transmitter identification number from the third signal.

18. A satellite and terrestrial based location system, comprising:

at least a first satellite and a second satellite, transmitting a first signal containing a first synchronization pulse and a second signal containing a second synchronization pulse respectively;

at least a first terrestrial repeater for receiving at least the first signal or the second signal, wherein the first terrestrial repeater transmits a third synchronization pulse; and

at least a receiver unit, wherein the receiver unit comprises:

a receiver for receiving the first signal, the second signal, and the third signal;

a decoder for decoding the first synchronization pulse from the first signal, the second synchronization pulse from the second signal, and the third synchronization pulse from the third signal;

a counter for measuring a first delay between the first synchronization pulse and the second synchronization pulse and for measuring a second delay between

one of the first synchronization pulse or the second synchronization pulse and the third synchronization pulse;

a processor for determining an first constant delay line based on the first delay and for determining a second constant delay line based on the second delay.

19. The location system of claim 18, wherein the processor in the receiver unit further determines the first constant delay line based on whether the receiver unit received the first signal first or the second signal first.

20. The location system of claim 18, wherein the decoder in the receiver unit further decodes a unique transmitter identification number from the third signal.

21. The location system of claim 18, wherein location system uses a time stamp during a receipt of the first synchronization signal and a receipt of the second synchronization signal at the receiver unit in a system where the at least first satellite and second satellite are not geostationary.

22. A satellite and terrestrial based location system comprising:

at least a first satellite and a second satellite, transmitting a first signal containing a first synchronization pulse including a time stamp indicating a time of transmission of the first signal and a second signal containing a second synchronization pulse;

an accurate clock in a receiver, wherein the accuracy of the accurate clock is sufficient to determine the delay between the synchronization pulse from the first satellite a time reference from the accurate clock determined at the receiver.

23. The system of claim 22, wherein the accurate clock is an internal time reference at the receiver that receives updates using a local terrestrially originating broadcast time standard.

24. A receiver unit, comprising:

a receiver for receiving a first signal and a second signal;

a decoder for decoding a first synchronization pulse from the first signal, a second synchronization pulse from the second signal;

an accurate local clock coupled to the receiver;

a counter for measuring a first delay between the first synchronization pulse and the second synchronization pulse and for measuring a second delay between one of the first synchronization pulse or the second synchronization pulse and a time reference obtained from the accurate local clock; and

a processor for determining an first constant delay line based on the first delay and for determining a second constant delay line based on the second delay.

25. The receiver unit of claim 24, wherein the accurate local clock is updated with a signal from a terrestrial transmission source.

26. The receiver unit of claim 25, wherein the processor accounts for a delay in the transmission from the terrestrial transmission source in processing the update to the accurate local clock.